The retractor 26 further includes an electric motor 108 (Fig 2). Preferably, the electric motor 108 is a low inertia, permanent magnet, DC motor. The electric motor 108 includes a rotor 110 and a stator 112. The stator 112 is rotationally fixed and the rotor 110 rotates relative to the stator 112 in a known manner. The electric motor 108 has a mathematical thermal time constant, as is known in the art, that can be used to calculate the time required to damage the motor by overloading or overheating. As will be discussed below, the thermal time constant can also be used to indicate the amount of time it takes for an electric motor 108 temperature to reach a certain value.

Please amend page 14, lines 1-24, of the Specification, as follows:

The outer surface 128 of the inner cylindrical wall 116 includes a groove 138 that extends around the circumference of the inner cylindrical wall 116. The groove 138 is defined by two surfaces. An inner surface 139 of the groove 138 is cylindrical and extends from first axial end 132 of the inner cylindrical wall 116 of the rotor 110 toward the second axial end 134 of the inner cylindrical wall 116. The inner surface 139 is centered on an axis B that is angled or tilted from axis A, as shown in Fig. 2. An end surface 141 of the groove 138 extends into the outer surface 128 of the inner cylindrical wall 116 in a direction perpendicular to axis B and connects to the inner surface 139 of the groove 138. Thus, the end wall 141 of the groove 138 is tilted relative to

a perpendicular of axis A as the groove 138 extends annularly around the outer surface 128 of the inner cylindrical wall 116 of the rotor 110. Specifically, a portion, indicated as X in Fig. 2, of the groove 138 is nearer the first axial end 132 of the inner cylindrical wall 116 of the rotor 110 and a portion, indicated as Y in Fig. 2, of the groove 138 opposite portion X is nearer the second axial end 134 of the inner cylindrical wall 116 of the rotor 110 so that end wall 141 is perpendicular relative to axis B.

Please amend page 15, lines 15-19, of the Specification, as follows:

Assembly of the electric motor 108 will be discussed below with reference to the assembly of the retractor 26. The electric motor 108 described is for illustration purposes only and other electric motor designs may be used.

Please amend ~~pages 22-23, lines 21-24 & 1-8~~ page 21, line 21 – page 22, line 8, of the Specification, as follows:

The electric motor 108 of the retractor 26 causes rotation of the spool 34. As will be discussed below, the spool 34 will not rotate relative to the housing 44 of the retractor 26 when the electric motor 108 is not energized. The electric motor 108 is energized by electric energy that is communicated to the electric motor 108 through the lead wires (not shown). The lead wires connect to the stator 112 and do not interfere with the moving parts of the retractor 26. Although not shown in the drawings, the lead wires preferably

exit the retractor 26 through an opening in the back wall 46 of the frame 44.

Please amend page 28, lines 5-18, of the Specification, as follows:

The vehicle occupant safety system 10 also includes a force detection device 176 for detecting a force applied to the seat belt webbing 20. Preferably, the force detection device 176 is a micro-electro mechanical (MEMs) strain sensitive transducer. As illustrated in Fig. 1, the force detection device 176 is located on the seat belt webbing 20 adjacent the anchor point 23. Those skilled in the art will recognize that the force detection device 176 may be located in other areas of the vehicle occupant safety system 10, such as on the pretensioner 24. The force detection device 176 detects the force applied to the seat belt webbing 20 and generates a signal indicative of the detected force.

Please amend pages 33-35, lines 7-24 & 1-24 & 1-6, of the Specification, as follows:

If the controller 180 receives a third set of signals, the controller 180 will assume that the vehicle occupant 12 is attempting to withdraw the seat belt webbing 20 from the retractor 26. The third set of signals are signals indicating that no vehicle crash condition exists, that the tongue assembly 28 is not latched in the buckle 36 and the tongue assembly 28 was not just recently unlatched from the buckle 36, and that there is a force being applied to the seat belt

webbing 20. Since the controller 180 has not received a signal indicating a vehicle crash condition, the controller 180 will operate the electric motor 108 in the first mode of operation. As a result, the controller 180 will send electric energy having an amperage in the predetermined range to the electric motor 108 of the retractor 26 to cause the spool 34 to rotate in the belt withdrawal direction 170. The controller 180 will cause the spool 34 to rotate in the belt withdrawal direction 170 until the force detection signal generated by the force detection device 176 equals zero. When the force detection signal equals zero, the controller 180 will review the signal generated by the buckle sensing switch 178 to determine if the tongue assembly 28 is latched in the buckle 36. If the tongue assembly 28 is latched in the buckle 36, the controller 180 will actuate the retractor 26 to tighten the seat belt webbing 20 around the occupant 12. Thus, the controller 180 will send electric energy having an amperage in the predetermined range to the electric motor 108. The electric motor 108 will cause the spool 34 to rotate in the belt retraction direction 172. The spool 34 will rotate in the belt retraction direction 172 until a force of a first predetermined level is detected. The first predetermined level of force is a force in the seat belt webbing ranging from about 0.5 pounds-force to about 3 pounds-force. Preferably, the first predetermined level of force is about 1 pound-force. The force of a first predetermined level is detected by the force detection device 176 and will indicate a snug fit of the seat belt webbing 20 around the occupant 12.

Particularly, the first predetermined level of force indicates a snug fit of the torso portion 40 of the seat belt webbing 20. If the controller 180 determines that the tongue assembly 28 is not latched in the buckle 36, the controller 180 will cause the spool 34 to rotate in the belt retraction direction 172 until the seat belt webbing 20 is in the retracted position.

Please amend page 40, lines 4-14, of the Specification, as follows:

From the above description of the invention, those skilled in the art will perceive improvements, changes and modifications. For example, additional structure may connect the wobble gear 148 to the frame 44 to prevent rotation of the wobble gear 148. If such structure is used, the structure must not interfere with a wobbling movement of the wobble gear 148, as described above. Also, the electric motor 108 may be a variable reluctance motor. Such improvements, changes and modifications within the skill of the art are intended to be covered by the appended claims.

IN THE CLAIMS:

Please amend claims 2, 3, 14, and 15, as follows:

2. (Amended) The system of claim 1 further being defined by:

the electric motor being drivingly connected to the spool by a gear assembly; and